REMARKS

In the Office Action mailed on 12/22/2004, the disclosure, the abstract, and the title are objected to because of informalities. Claims 1-10 are objected to because of informalities. Claims 1 is rejected under Section 102 and Claims 2-10 under Section 103. Applicants respectfully traverse the rejection as follows.

SPECIFICATION OBJECTIONS

In view of the amendment to the disclosure, the abstract, and the title, Applicants submit that the informality objections are overcome. Withdrawal of the informality Objection is requested.

CLAIM OBJECTIONS

In view of the amendment to Claims 1-10, Applicants submit that the informality objections are overcome. Withdrawal of the informality Objection is requested.

THE SECTION 102 REJECTION

Claim 1 Rejection

Claims 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Kim et al (U.S. 6,729,771). Kim relates to a subassembly for use in fiber optic communications systems where multiple optical fibers are used in either transmitting or receiving optical signals. The subassembly is adapted for being mechanically and optically connected with a ferrule supporting a set of optical communications fibers. The subassembly uses a carrier assembly to support an optoelectronic device having a corresponding set of photoactive components which are operative for either converting photonic signals to electrical signals (in a receiver) or converting electrical signals to photonic signals (in a transmitter). The subassembly includes a lens and alignment frame having a set of guide pins and an array of lenses for interfacing the fibers of the ferrule with the photoactive components of the optoelectronic device on the carrier assembly. The carrier assembly may also include signal processing

devices and a circuit board having an edge connector for removably connecting the subassembly with a computer or communications system.

The Office Action mapped Kim to the Claim 1 of the instant invention as follows:

> Regarding Claim 1, Kim et al teach a multi-channel optical transceiver module comprising a plurality of optical subassemblies (OSA) for transforming received multi-channel optical signals into multi-channel electrical signals and transforming multi-channel electrical signals into multi-channel optical signals for transmission (see column 2, line 22-67 and column 4, lines 25-49). The module also includes a plurality of special signal processing IC units for disposing the mutil-channel electrical signals received from the plurality of OSA units and for inputting multi-channel electrical signals to the plurality of OSA units for transmission (see column 6, lines 31-36). The module also comprises an electrical connector unit for outputting multi-channel electrical signals disposed by the special processing IC unit and for providing received multi-channel electrical signals to the special signal processing IC units for disposal (see column 2, lines 57-69 and column 5, lines 10-33).

Applicants respectfully traverse the Section 102 Rejection. Per MPEP Section 706.02, for anticipation under 35 U.S.C. 102, the reference must teach each and every aspect of the claimed invention. The amended Claim 1 includes the following elements:

> A multi-channel optical transceiver module, comprising:
> a) a plurality of optical connector mountings;
> b) a plurality of optical subassemblies (OSA) each configured to be fixedly mounted in one of the optical connector mountings, wherein each of the OSA is configured to transform a first optical signal to a first electrical signal and to transform a second processed electrical signal to a second optical signal;
> c) a signal processing IC unit electrically coupled to the plurality of OSA, configured to process the first electrical signal to produce a first processed electrical signal and to process a second electrical signal to produce the second processed electrical signal; and
> d) an electrical connector unit electrically coupled to the signal processing IC unit, configured to output the first processed electrical signal and to transmit the second electrical signal to the signal processing IC unit.

In column 4 lines 50-58 and in related Figure 3, Kim discloses

> Referring now to FIG. 3, the proximal end 26 of the ferrule 12 is shown which includes a pair of alignment holes 30 and a set of twelve optical communications

fibers 17 having polished fiber ends 32. The fibers 17 and their polished ends 32 are rigidly supported within the ferrule 12. The fiber ends 32 are disposed in a linear array 33 at regular 250 micron intervals along a line extending between the alignment holes 30. The fiber ends 32 are precisely aligned with the holes 30.

A critical difference between the amended claim 1 and Kim et al is whether the optical fibers (or OSA) are individually mounted and aligned or mounted and aligned in a module. In Kim, a plurality of fibers are rigidly supported within the ferrule 12. The fiber ends 32 are disposed in a linear array 33 between the alignment holes 30. The fiber ends 32 are precisely aligned with the holes 30. There is no teaching in Kim et al on "a plurality of optical connector mountings" or "a plurality of optical subassemblies (OSA) each configured to be fixedly mounted in one of the optical connector mountings in the amended claim 1".

The feature that each OSA can be individually mounted and aligned is disclosed in Figures 3 and 4, and the second paragraph on page 5 in the instant application. Figure 3 shows that each OSA unit 101 is shown to be fixedly mounted in an optical connector mounting 112. Figure 4 shows snap-on mechanisms in each of the optical connector mountings 112. Each of the OSA unit can be individually mounted in the optical connector mountings 112.

The feature that each OSA can be individually mounted and aligned is fundamental to the performance and flexibility of the optical transceiver module in the instant application. First, the individually mounted and aligned OSA units are much more precisely aligned than aligning a group of optical fibers by aligning holes (30 in Kim). Secondly, the alignment of the individually mounted and aligned OSA units is less sensitive to environmental disturbances than the mechanism in Kim. Thirdly, the individual optical connector mountings allow each individual OSA unit to be removed and replaced separately without affecting other OSA units.

In sum, Kim et al do not teach at least two elements "a plurality of optical connector mountings" and "a plurality of optical subassemblies (OSA) each configured to be fixedly mounted in one of the optical connector mountings" in the amended claim 1 of the instant application.

In view of the amendment to Claim 1 and the above argument, Claim 1 cannot be anticipated by Kim et al. Withdrawal of the Section 102 rejection is respectfully requested.

THE SECTION 103 REJECTION

Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al (US 6,729,771) as applied in claim 1 above, and further in view of Norton (US 6,604,685).

The Examiner stated that

> Kim et al teach a multi-channel optical transceiver module as discussed above in reference of claim 1. Kim et al do not teach that the module includes a MPU. However, Norton teaches an optical transceiver module comprising an OSA unit and a signal processing unit (logic circuits) (see column 4, lines 20-35). Norton also teaches that the module includes a MPU for monitoring operation status of the OSA unit and of the signal processing unit so as to send out monitoring information. It would have been obvious to one of ordinary skill in the art at the time of invention to use the MPU taught by Norton to monitor the operation status of the plurality of OSA units and of the plurality of signal processing units in the optical transceiver taught by Kim et al for the purpose of allowing the transceiver module to have the capability of managing and storing data in memory and to compute complex algorithm (see column 2, line 64 to column 3, line 9 of Norton).

Applicants respectfully traverse the Section 103 Rejection. First as discussed above in response to the Claim 1 rejection, neither Kim et al nor Norton teaches at least two elements "a plurality of optical connector mountings" and "a plurality of optical subassemblies (OSA) each configured to be fixedly mounted in one of the optical connector mountings" in the amended claim 1 of the instant application. To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). Since neither Kim et al nor Norton teaches at least two elements in the amended Claim 1 in the instant application, the combination of Kim et al and Norton can not render Claim 2 obvious.

Secondly, the combination of the Norton system and the system disclosed by Kim et al. cannot lead to an operative optical transceiver. Norton discloses "Optical smart card system" that can include an optical smart card reader 64 and an optical smart card 70 (Figs 7A and 7B). Fundamentally, the two key components in the smart card system are asymmetrical, that is, the optical smart card reader 64 writes data into the optical smart card 70 or read data from the optical smart card 70. The optical smart card 70 cannot retroactively perform the same functions over the optical smart card reader 64. In contract, it is well known in the art that the optical transceiver modules are bi-directional systems wherein data can be symmetrically transmitted from electrical connector to the optical connector, and vice versa. The combination of Kim et al and Norton therefore cannot lead to an operative optical transceiver and thus cannot render Claim 2 obvious.

In sum, neither Kim et al nor Norton, singly or individually, can render obvious Claim 2 of the instant invention. Withdrawal of the Section 103 rejection on Claim 2 is respectfully requested.

Similarly, Claim 3 can also not be rendered obvious by Kim et al and Norton for the similar reasons as described above: 1) both Kim et al and Norton fail to disclose at least two elements in the Claim 1 that Claim 3 is dependent on, and 2) Kim et al and Norton cannot be properly combined to lead to an operative optical transceiver. Withdrawal of the Section 103 rejection on Claim 3 is respectfully requested.

Claims 4-6 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al (US 6,729,771) in view of Norton (US 6,604,685) as applied to claim 3 above, and further in view of Yonemura et al (US 2001/0024551 A1).

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al (US 6,729,771) in view of Norton (US 6,604,685) and in view of Yonemura et al (US 2001/0024551 A1) as applied to claim 6, and further in view of Wike, Jr. et al (US 5,256,865).

Similar to the responses above in relation to the rejection of Claims 2 and 3, both Kim et al and Norton fail to disclose at least two elements in the independent Claim 1 that Claims 4-10 are dependent on. Kim et al and Norton cannot be properly combined to lead to an

operative optical transceiver. The combination of Kim et al, Norton, and the other above cited disclosures therefore cannot render Claims 4-10 obvious. Withdrawal of the Section 103 rejection on Claim 4-10 is respectfully requested.

CONCLUSION

Applicants believe that the above discussion is fully responsive to all grounds of rejection set for the in the Office Action.

If for any reasons the Examiner believes a telephone conference would in any way expedite resolution of the issues raised in this appeal, the Examiner is invited to telephone the undersigned at 650-856-8600.

Respectfully submitted,

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